UN38.3 检测报告

UN38.3 Test Report

样品名称： Sample Name:	可充电锂离子电池 ARB-L18-3400(LG) Rechargeable Li-ion Battery ARB-L18-3400(LG)
型号规格： Model:	ARB-L18-3400(LG) 3.6V 3400mAh 12.24Wh
委托单位： Applicant:	深圳市朗恒电子有限公司 SHEN ZHEN LANG HENG ELECTRONIC CO.,LTD
检测项目： Test Items:	高度模拟、温度试验、振动、冲击、外部短路、撞击、过度充电、强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, Overcharge, Forced discharge
检测类别： Test Category:	委托检测 Commission test

北京迪捷姆空运技术开发有限公司

Beijing DGM Air Transport Technology Co., Ltd.

报 告 书 使 用 约 定

Terms of the Using of the Report

1. 本公司依据委托人（托运人或其代理人）提供的物品，做出检测并出具此报告书。
   The report is issued by DGM China according to the test of the goods and the information of its shipping provided by the applicant (shipper or his agent).
2. 依据检测的需要，本公司要求委托人提供真实、完整的货物样品及资料。
   According to the demand of test, DGM China requires the applicant to provide true and exact sample and data of the cargo.
3. 委托人保证申报的物品和/或提供的样品与交运的货物是一致的。
   The applicant guarantees that the declared goods and/or the sample who provides should be identical with the contents of cargo that is to be transported.
4. 本公司仅对样品的检测结果负责。
   DGM China is only responsible for the test of the sample provided by the applicant.
5. 本报告书经主检员、审核人和批准人签字并加盖本公司印章后生效。
   This report will be effective only after it is signed by the inspector:, checker and approver, and stamped by DGM China.
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电话： Tel:	010-69479673	传真： Fax:	010-69479621
网址： **Website：**	**www.dgmchina.com.cn**	**邮箱：** **E-mail：**	**test@dgmchina.com.cn**
深圳分公司 Address	深圳市宝安机场航空物流园航站四路 2039 号物流大厦 421 室 Room 421 Logistics Building,Air Logistics Zone Bao'an International Airport ,Shenzhen,Guangdong,China	邮编 Postcode	518128
电话	0755-29910550	**邮箱：**	**szdgm@dgmchina.com.cn**

北京迪捷姆空运技术开发有限公司
Beijing DGM Air Transport Technology Co., Ltd.
UN38.3 检 测 报 告
UN38.3 Test Report

样品类型 Sample Type	单电芯锂离子电池 Single Cell Li-ion Battery	商标 Trademark	FENIX
		型号/规格 Model	ARB-L18-3400(LG) 3.6V 3400mAh 12.24Wh
委托单位 Applicant	名称 Name	深圳市朗恒电子有限公司 SHEN ZHEN LANG HENG ELECTRONIC CO.,LTD	
	地址 Address	深圳市宝安 33 区东方明工业城二栋八楼 8/F, 2nd Building, DongFangMing Industrial Center, 33rd District, Bao'an, Shenzhen	
来样方式 Means of Receiving	委托方送样 Submitted by applicant	送样日期 Accepted Date	2020.07.06
检测日期 Test Date	2020.07.07-2020.07.30		
检测地点 Test Site	深圳实验室 Shenzhen Laboratory	出证地点 Certificate Site	深圳分公司 Shenzhen Branch
检测项目 Test Items	高度模拟、温度试验、振动、冲击、外部短路、撞击、过度充电、强制放电 Altitude simulation, Thermal test, Vibration, Shock, External short circuit, Impact, Overcharge, Forced discharge		
检测依据 Test Method	联合国《关于危险货物运输的建议书-试验和标准手册》(第 6 版修订一) 38.3 节 UN Recommendations on the Transport of Dangerous Goods Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 /Amend. 1/ Subsection 38.3		
检测结论 Conclusion	根据联合国《关于危险货物运输的建议书-试验和标准手册》(第 6 版修订一) 38.3 节的规定，该电池样品通过所有项目检测，符合该条款的性能要求。 The samples have passed all test items of UN Recommendations on the Transport of Dangerous Goods - Manual of Tests and Criteria ST/SG/AC.10/11/Rev.6 /Amend. 1/ Subsection 38.3. 检测单位(盖章) Test Lab(Stamp) 签发日期(Issue Date)：2020 年 08 月 04 日		

检测：Tested by: 罗晓锋　　审核：Checked by: 　　批准：Approved by:

电池信息 Information for Battery			
电芯生产厂家 Cell manufacturer	乐金化工有限公司 LG Chemical Limited		
电芯厂家联系电话 Phone number	82-42-719-3510	邮箱 e-mail	//
电芯厂家地址 Address	首尔永登浦区汝矣大道 LG 双子大厦 Twin Tower, Yoido-Dong, Youndungpo-Ku, Seoul, Korea		
电芯厂家网址 Website	**www.lgchem.com**		
Pack 厂家 Pack manufacturer	深圳市华安宏瑞科技有限公司 Shenzhen HuaGreen Technology Co.,Ltd.		
Pack 厂家联系电话 Phone number	0755-23772990	邮箱 e-mail	sales01@huagreen.com
Pack 厂家地址 Address	深圳市龙岗区宝龙工业区宝清路 8 号双环新一代信息技术产业园 B 栋 11 楼 11 Floor, Building B, Shuanghuan Industrial Park, No.8, Baoqing Road, Bao Long Industrial Park, Longgang District, Shenzhen		
Pack 厂家网址 Website	**www.huagreen.com**		

电芯参数 Information for cell			
电芯型号 Cell Model	INR18650F1L		
标称电压 Nominal Voltage	3.63V	额定容量 Rated Capacity	3350mAh
标准充电电流 Standard Charging Current	975mA	标准放电电流 Standard discharging Current	650mA
最大连续充电电流 Maximum charging current	1625mA	最大放电电流 Maximum discharge current	4875mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.5V
外观形状 Appearence	紫色圆柱体 Purple cylinder	电芯尺寸 Cell size	Φ18.3×65.0mm

电池参数 Information for battery			
标准充电电流 Standard charging current	975mA	标准放电电流 Standard discharging current	650mA
最大连续充电电流 Maximum charging current	1625mA	最大放电电流 Maximum discharge current	6000mA
充电限制电压 Limited charging voltage	4.2V	放电截止电压 Cut-Off voltage	2.5V
规格/型号 Model	ARB-L18-3400(LG) 3.6V 3400mAh 12.24Wh	电池尺寸 Battery size	Φ18.5×69.1mm
组成电芯数量 Number of cell	单电芯 Single cell	外观形状 Appearence	橙黑杂色圆柱体 Orange and black cylinder

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序号 No.	检测项目 Test Items	标准要求或标准条款 Standard Requirement or the Clause of Standard	检测结果 Test Result	单项评价 Conclusion	备注 Remark
1	高度模拟 Altitude Simulation	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.1	无泄漏、无排气、无解体、无破裂、无起火，试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
2	温度试验 Thermal Test	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.2	无泄漏、无排气、无解体、无破裂、无起火，试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
3	振动 Vibration	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.3	无泄漏、无排气、无解体、无破裂、无起火，试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
4	冲击 Shock	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.4	无泄漏、无排气、无解体、无破裂、无起火，试验后的开路电压不低于试验前的 90%。 No leakage, no venting, no disassembly, no rupture and no fire. The open circuit voltage of each battery after testing is not less than 90% of its voltage immediately prior to this procedure.	符合 Pass	/
5	外部短路 External Short Circuit	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.5	外壳温度不超过 170 ℃，无解体、无破裂、无起火。 External temperature does not exceed 170℃. No disassembly, no rupture and no fire.	符合 Pass	/
6	撞击 Impact	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.6	外壳温度不超过 170 ℃，无解体、无起火。 External temperature does not exceed 170℃. No disassembly, no fire.	符合 Pass	/
7	过度充电 Overcharge	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.7	无解体、无起火。 No disassembly, no fire.	符合 Pass	/
8	强制放电 Forced Discharge	ST/SG/AC.10/11/Rev.6/ Amend. 1/ Subsection 38.3 Test T.8	无解体、无起火。 No disassembly, no fire.	符合 Pass	/

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T.1：高度模拟
T.1：Altitude Simulation

样品编号 Sample No.	样品状态 Sample Status	检测前 Pre-test		检测后 After-test				有无泄漏、排气、解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass m_1(g)	开路电压 OCV V_1(V)	质量 Mass m_2(g)	质量损失 Mass Loss （%）	开路电压 OCV V_2(V)	剩余电压 Residual OCV（%）	
A1	首次完全充电 First cycle fully charged	48.143	4.176	48.143	0.000	4.163	99.69	No
A2	首次完全充电 First cycle fully charged	48.229	4.176	48.229	0.002	4.160	99.62	No
A3	首次完全充电 First cycle fully charged	48.275	4.177	48.275	0.000	4.162	99.64	No
A4	首次完全充电 First cycle fully charged	48.230	4.178	48.229	0.002	4.164	99.66	No
A5	首次完全充电 First cycle fully charged	48.175	4.177	48.174	0.000	4.160	99.59	No
A6	25 次完全充电 25 cycles fully charged	48.123	4.182	48.123	0.000	4.175	99.83	No
A7	25 次完全充电 25 cycles fully charged	48.111	4.180	48.110	0.002	4.174	99.86	No
A8	25 次完全充电 25 cycles fully charged	48.212	4.181	48.212	0.000	4.175	99.86	No
A9	25 次完全充电 25 cycles fully charged	48.139	4.179	48.139	0.000	4.173	99.86	No
A10	25 次完全充电 25 cycles fully charged	48.330	4.183	48.329	0.002	4.177	99.86	No

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T.2：温度试验

T.2：Thermal Test

样品编号 Sample No.	样品状态 Sample Status	检测前 Pre-test		检测后 After-test				有无泄漏、排气、解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass m_1(g)	开路电压 OCV V_1(V)	质量 Mass m_2(g)	质量损失 Mass Loss（%）	开路电压 OCV V_2(V)	剩余电压 Residual OCV（%）	
A1	首次完全充电 First cycle fully charged	48.143	4.163	48.139	0.008	4.100	98.49	No
A2	首次完全充电 First cycle fully charged	48.229	4.160	48.224	0.010	4.098	98.51	No
A3	首次完全充电 First cycle fully charged	48.275	4.162	48.269	0.012	4.099	98.49	No
A4	首次完全充电 First cycle fully charged	48.229	4.164	48.225	0.008	4.099	98.44	No
A5	首次完全充电 First cycle fully charged	48.174	4.160	48.169	0.010	4.098	98.51	No
A6	25 次完全充电 25 cycles fully charged	48.123	4.175	48.117	0.012	4.106	98.35	No
A7	25 次完全充电 25 cycles fully charged	48.110	4.174	48.105	0.010	4.105	98.35	No
A8	25 次完全充电 25 cycles fully charged	48.212	4.175	48.207	0.010	4.107	98.37	No
A9	25 次完全充电 25 cycles fully charged	48.139	4.173	48.131	0.017	4.104	98.35	No
A10	25 次完全充电 25 cycles fully charged	48.329	4.177	48.323	0.012	4.106	98.30	No

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T.3：振动

T.3：Vibration

样品编号 Sample No.	样品状态 Sample Status	检测前 Pre-test		检测后 After-test				有无泄漏、排气、解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass m_1(g)	开路电压 OCV V_1(V)	质量 Mass m_2(g)	质量损失 Mass Loss （%）	开路电压 OCV V_2(V)	剩余电压 Residual OCV（%）	
A1	首次完全充电 First cycle fully charged	48.139	4.100	48.137	0.004	4.098	99.95	No
A2	首次完全充电 First cycle fully charged	48.224	4.098	48.223	0.002	4.096	99.95	No
A3	首次完全充电 First cycle fully charged	48.269	4.099	48.268	0.002	4.097	99.95	No
A4	首次完全充电 First cycle fully charged	48.225	4.099	48.223	0.004	4.096	99.93	No
A5	首次完全充电 First cycle fully charged	48.169	4.098	48.168	0.002	4.098	100.00	No
A6	25 次完全充电 25 cycles fully charged	48.117	4.106	48.115	0.004	4.104	99.95	No
A7	25 次完全充电 25 cycles fully charged	48.105	4.105	48.104	0.002	4.103	99.95	No
A8	25 次完全充电 25 cycles fully charged	48.207	4.107	48.206	0.002	4.105	99.95	No
A9	25 次完全充电 25 cycles fully charged	48.131	4.104	48.131	0.000	4.102	99.95	No
A10	25 次完全充电 25 cycles fully charged	48.323	4.106	48.322	0.002	4.103	99.93	No

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T.4：冲击

T.4：Shock

样品编号 Sample No.	样品状态 Sample Status	检测前 Pre-test		检测后 After-test				有无泄漏、排气、解体、破裂、起火 Leakage, Venting, Disassembly, Rupture, Fire(Yes/No)
		质量 Mass m_1(g)	开路电压 OCV V_1(V)	质量 Mass m_2(g)	质量损失 Mass Loss （%）	开路电压 OCV V_2(V)	剩余电压 Residual OCV（%）	
A1	首次完全充电 First cycle fully charged	48.137	4.098	48.136	0.002	4.096	99.95	No
A2	首次完全充电 First cycle fully charged	48.223	4.096	48.222	0.002	4.095	99.98	No
A3	首次完全充电 First cycle fully charged	48.268	4.097	48.267	0.002	4.096	99.98	No
A4	首次完全充电 First cycle fully charged	48.223	4.096	48.221	0.004	4.095	99.98	No
A5	首次完全充电 First cycle fully charged	48.168	4.098	48.167	0.002	4.093	99.88	No
A6	25 次完全充电 25 cycles fully charged	48.115	4.104	48.113	0.004	4.101	99.93	No
A7	25 次完全充电 25 cycles fully charged	48.104	4.103	48.102	0.004	4.101	99.95	No
A8	25 次完全充电 25 cycles fully charged	48.206	4.105	48.205	0.002	4.100	99.88	No
A9	25 次完全充电 25 cycles fully charged	48.131	4.102	48.129	0.004	4.101	99.98	No
A10	25 次完全充电 25 cycles fully charged	48.322	4.103	48.320	0.004	4.102	99.98	No

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T.5：外部短路

T.5：External Short Circuit

样品编号 Sample No	样品状态 Sample Status	样品表面最高温度(℃) Highest External Temperature/℃	有无解体、破裂、起火 Disassembly, Rupture, Fire(Yes/No)
A1	首次完全充电 First cycle fully charged	57.4	No
A2	首次完全充电 First cycle fully charged	56.5	No
A3	首次完全充电 First cycle fully charged	56.8	No
A4	首次完全充电 First cycle fully charged	56.6	No
A5	首次完全充电 First cycle fully charged	57.3	No
A6	25 次完全充电 25 cycles fully charged	57.0	No
A7	25 次完全充电 25 cycles fully charged	56.6	No
A8	25 次完全充电 25 cycles fully charged	56.9	No
A9	25 次完全充电 25 cycles fully charged	56.4	No
A10	25 次完全充电 25 cycles fully charged	57.1	No

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T.6：撞击

T.6：Impact

样品编号 Sample No.	样品状态 Sample Status	样品表面最高温度(℃) Highest External Temperature/℃	有无解体、起火 Disassembly, Fire(Yes/No)
B1	首次 50%容量 First cycle charged 50% rated capacity	37.0	No
B2	首次 50%容量 First cycle charged 50% rated capacity	36.7	No
B3	首次 50%容量 First cycle charged 50% rated capacity	36.8	No
B4	首次 50%容量 First cycle charged 50% rated capacity	53.7	No
B5	首次 50%容量 First cycle charged 50% rated capacity	54.8	No
B6	25 次 50%容量 25 cycles charged 50% rated capacity	38.9	No
B7	25 次 50%容量 25 cycles charged 50% rated capacity	36.2	No
B8	25 次 50%容量 25 cycles charged 50% rated capacity	36.4	No
B9	25 次 50%容量 25 cycles charged 50% rated capacity	39.7	No
B10	25 次 50%容量 25 cycles charged 50% rated capacity	37.6	No

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T.7：过度充电
T.7：Overcharge

样品编号 Sample No.	样品状态 Sample Status	有无解体、起火 Disassembly, Fire(Yes/No)
C1	首次完全充电 First cycle fully charged	No
C2	首次完全充电 First cycle fully charged	No
C3	首次完全充电 First cycle fully charged	No
C4	首次完全充电 First cycle fully charged	No
C5	25 次完全充电 25 cycles fully charged	No
C6	25 次完全充电 25 cycles fully charged	No
C7	25 次完全充电 25 cycles fully charged	No
C8	25 次完全充电 25 cycles fully charged	No

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T.8：强制放电

T.8：Forced Discharge

样品编号 Sample No.	样品状态 Sample Status	有无解体、起火 Disassembly, Fire(Yes/No)
D1	首次完全放电 First cycle fully discharged	No
D2	首次完全放电 First cycle fully discharged	No
D3	首次完全放电 First cycle fully discharged	No
D4	首次完全放电 First cycle fully discharged	No
D5	首次完全放电 First cycle fully discharged	No
D6	首次完全放电 First cycle fully discharged	No
D7	首次完全放电 First cycle fully discharged	No
D8	首次完全放电 First cycle fully discharged	No
D9	首次完全放电 First cycle fully discharged	No
D10	首次完全放电 First cycle fully discharged	No
D11	25 次完全放电 25 cycles fully discharged	No
D12	25 次完全放电 25 cycles fully discharged	No
D13	25 次完全放电 25 cycles fully discharged	No
D14	25 次完全放电 25 cycles fully discharged	No
D15	25 次完全放电 25 cycles fully discharged	No
D16	25 次完全放电 25 cycles fully discharged	No
D17	25 次完全放电 25 cycles fully discharged	No
D18	25 次完全放电 25 cycles fully discharged	No
D19	25 次完全放电 25 cycles fully discharged	No
D20	25 次完全放电 25 cycles fully discharged	No
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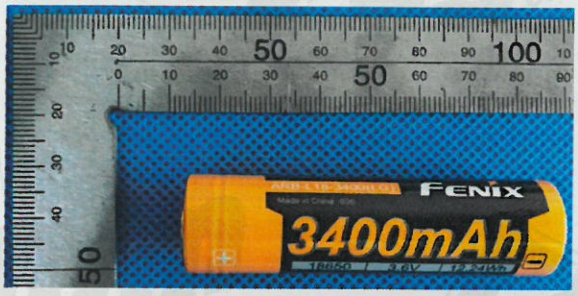
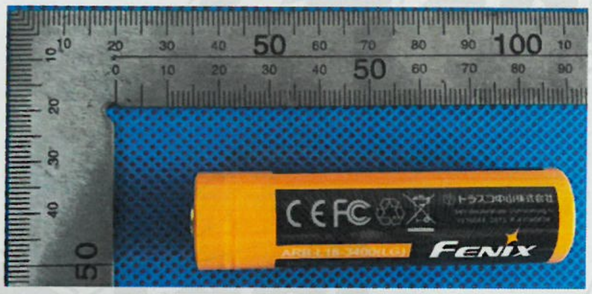
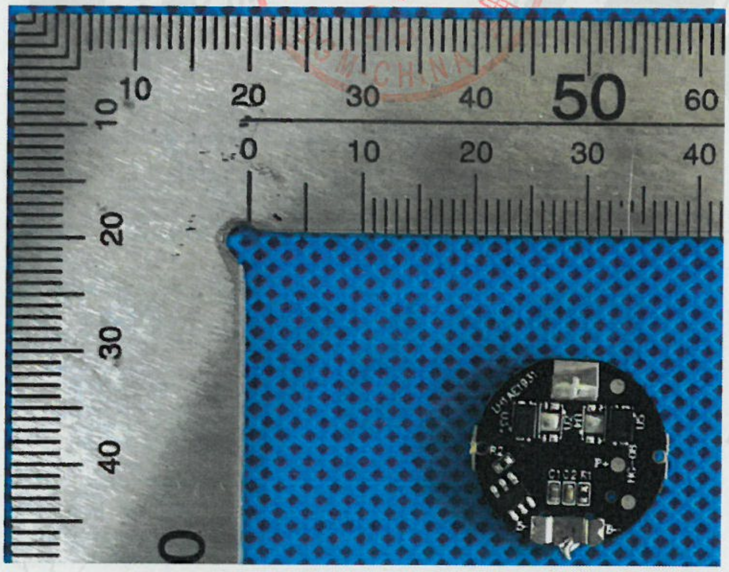
电池图片/Battery pictures

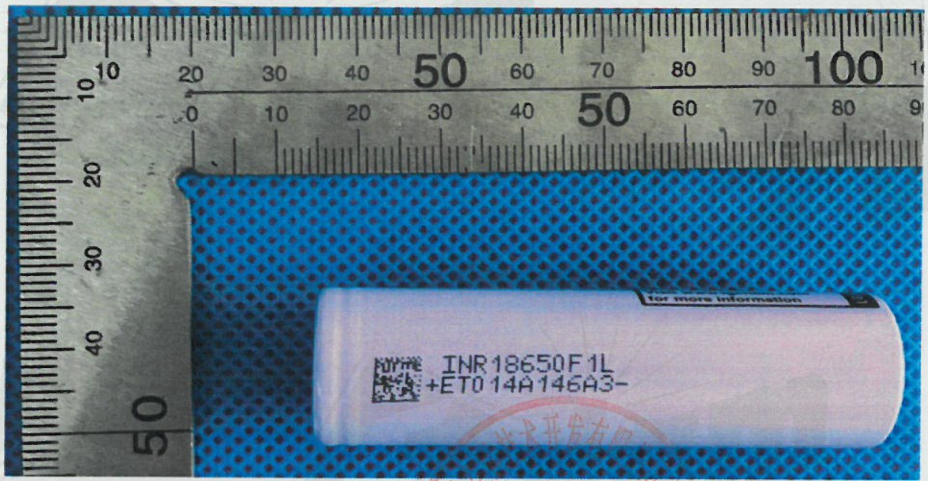


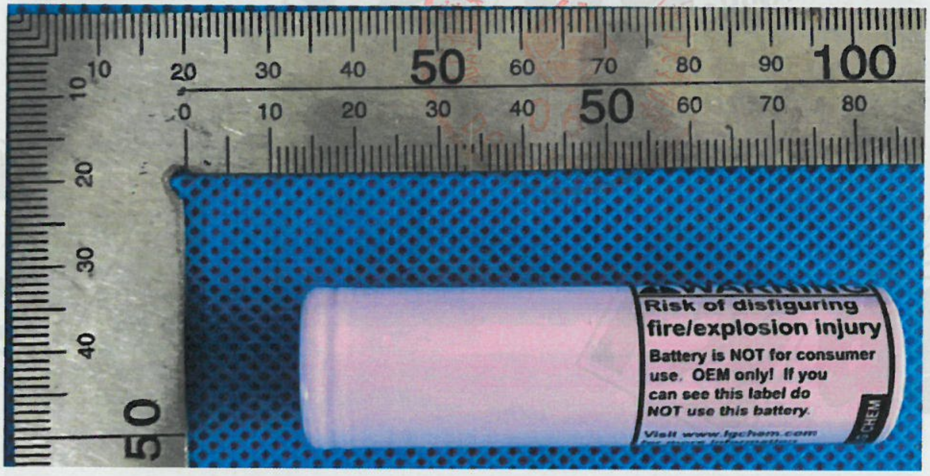


保护装置/Protective devices



内部电芯/Internal cell:





* End of the report *